

REMARKS

The present application was filed on June 16, 2000 with claims 1 through 24. Claims 1 through 24 are presently pending in the above-identified patent application. Claim 4 is proposed to be cancelled and claims 1, 5-8, 11, and 22-24 are proposed to be amended herein.

In the Office Action, the Examiner rejected claims 1-3 and 15-24 under 35 U.S.C. §102(b) as being anticipated by Piosenka et al. (United States Patent Number 4,993,068) and rejected claims 9-10 under 35 U.S.C. §103(a) as being unpatentable over Piosenka et al. in view of Jain et al. (United States Patent Number 6,185,318). The Examiner indicated that claims 4-8 and 11-14 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

The present invention is directed to methods for signal scrambling and morphing techniques to intentionally distort the original biometrics signal in a non-invertible fashion. If the security is compromised, the system can cancel a particular distortion and reacquire the signal with a new distortion function. This provides functionality as good as non-biometric authentication methods in terms of their power of revocation.

The specification has been amended to correct typographical errors and to add the U.S. Patent application number of a related U.S. Patent application.

Independent Claims 1 and 22-24

Independent claims 1 and 22-24 were rejected under 35 U.S.C. §102(b) as being anticipated by Piosenka et al.

Regarding claim 1, the Examiner asserts that Piosenka teaches a distortion process that selectably distorts the first digital representation into a distorted digital representation by distorting at least one of the subcharacteristics, the distortion process being repeatable.

The Examiner has indicated that claim 4 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants have amended independent claims 1 and 22-24 to include the

limitation of claim 4 (the distortion is non-invertible). Independent claims 1 and 22-24, as amended, now require that the distortion process is repeatable and non-invertible.

Thus, Piosenka et al. do not disclose or suggest a distortion process that is repeatable and non-invertible, as required by independent claims 1 and 22-24.

5 Additional Cited References

Jain et al. was also cited by the Examiner for its disclosure of quantization, and where the distorted digital representation has a larger range relative to the range of the first digital representation. Applicants read Jain et al. as being directed to a system and method for matching a two dimensional pattern of lines by creating a one
10 dimensional representation of one or more points on the lines in the pattern. Jain et al. do not address the issue of distorting at least one of the subcharacteristics, wherein the distortion process is repeatable and non-invertible.

Thus, Jain et al. do not disclose or suggest a distortion process that is repeatable and non-invertible, as required by independent claims 1 and 22-24.

15 Dependent Claims 2-21

Dependent claims 2-3 and 15-21 were rejected under 35 U.S.C. §102(b) as being anticipated by Piosenka et al. and dependent claims 9-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Piosenka et al. in view of Jain et al.

20 Claims 2-21 are dependent on claim 1 and are therefore patentably distinguished over Piosenka et al. and Jain et al. (alone or in any combination) because of their dependency from amended independent claim 1 for the reasons set forth above, as well as other elements these claims add in combination to their base claim. The Examiner has already indicated that claims 4-8 and 11-14 would be allowable if rewritten
25 in independent form including all of the limitations of the base claims and any intervening claims.

All of the pending claims, i.e., claims 1-3 and 5-24, are in condition for allowance and such favorable action is earnestly solicited.

30 If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,



Date: August 11, 2003

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